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OPHTHALMIC HOSPITALS IN EGYPT.

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(Illustrated.)

Many American travellers in Egypt have seen the white tents of the Travelling Ophthalmic Hospitals, it may have been at Luxor, or on the road to the Pyramids, or in some other less accessible place, and it is to inform them as to the work of the hospitals and perhaps to interest them in their future that this short account of the work has been written.

Before any conception can be formed of the reasons why it is so necessary to press forward the means of ophthalmic relief in Egypt, one must understand roughly the ophthalmic conditions which now obtain in the country.

Trachoma, a chronic contagious disease affecting primarily the eyelids, is ubiquitous and affects more than 90 per cent of the population. This dictum is based on regular examinations of the pupils of some of the large Government primary schools and of thirty-seven kuttabs or preparatory schools, where during last year it was found that more than 90 per cent of the pupils showed unmistakable evidence of active or quiescent Trachoma. As the result of experience and local knowledge now extending from one end of Egypt to the other, it may be said that the incidence of trachoma in different places among the middle and lower classes varies very little.

The extraordinary density of the population naturally favors the spread of the disease, this is 939 per square mile and is greater than that of any European country, of which the most densely populated is Belgium with 588 per square mile.

The mode in which the disease is spread is mainly by the fingers; clothing also is a fruitful source of contagion, used as it is indifferently as a mosquito net, a towel, and a protection from the heat or cold.

Acute ophthalmias occur at all times during the year but are more prevalent in the hotter months during the period of increased microbic activity, when the contagion may be fly-borne, although it is probable that it is more commonly digital.

The uncleanly habits of the lower classes, habits in some cases consecrated by custom, and in others aggravated by the difficulty in obtaining water; the crowded huts with crumbling mud walls in which the poorer fellahin sleep together with their cattle; the dust of the streets, unpaved and unwatered except in a few of the larger streets, and continually ground to powder by the trampling of the cattle, which are daily driven from the huts to the fields; the



Permanent Ophthalmic Hospital, Tanta, Egypt, under the charge of Dr. Mahomet.

gales of daily occurrence during some periods of the year, which drive the dust about until it permeates the whole atmosphere, both without and within the most hermetically sealed house; all these are fertile causes of acute ophthalmias.

The occurrence of acute ophthalmias materially assists the spread of Trachoma. A non-secreting case of Trachoma is only slightly infective, but as soon as the secretion caused by the addition of an acute ophthalmia to the chronic Trachoma is transferred to unaffected persons, it may be by the fingers, by towels, or by clothes, trachomatous contagion rapidly spreads.

Trachoma may have various sequelæ, but the most important are trichiasis and entropion, of which ten thousand cases were seen at the ophthalmic hospitals in 1909; the time at our disposal only enabled us to operate on three thousand of these cases. Trachoma alone rarely causes blindness; this is the effect of the acute ophthalmias. Six per cent of all cases seen by the ophthalmic staff in 1909 were blind in both eyes (1385 in all) and 15.64 per cent were blind in one or both eyes (3501 cases).

The 1907 official census showed that Egypt was nine times as much affected with blindness as the colored population of the most



Luxor—Patients waiting treatment; Surgeon in foreground.

affected state (Idaho) and fifty-five times as much as the average in the United States (1900 census).

Description of a Travelling Hospital.

Many of those who have seen the travelling hospital this year at Luxor, which was encamped close to the American Mission School on the road to the temple of Karnak, could give a good description of the picturesque crowd of waiting patients.

An acre of land dotted over with large tents of Indian make;



Luxor—Children at the Camp.

the little garden forming a restful patch of green on the brown soil. The large mat shelters erected to shield the patients from the glare of the sun. Under the shelters three or four hundred natives of all sorts and conditions, and of all ages, but all poor. The majority of them are children. Most are animated and interested, pleased to wait as long as is required, for them every hospital day is a fête where they meet their friends and indulge in agreeable converse.

Pretty little girls in gaily striped gowns, filthy babies in the arms of filthy mothers, who will be refused treatment inexorably until the baby's face has been washed by the mother. Boys of all ages. A row of old men squatting on the ground, each of whom is blind or nearly blind with cataract, but all will be operated on for this condition sooner or later.

A sad and silent little group squatting on the ground in front of bowls of sublimate solution, each with two little platters, one containing clean pledgets of cotton wool to dip in the solution, and another to contain them when they have been used for swabbing their eyes. These are the cases of acute ophthalmia of every degree of severity. There is a "sheyal" or porter in a short blue gown, in the prime of life, magnificently built, with ulceration of both cornea and prolapse of the irides, stoically mopping his eyes, miserable but unimaginative and not thinking of his future. There is an undersized little man in European clothes, a katib at the Mudiria, who accompanied by his father, has arrived with a profuse conjunctival discharge; the father beats his breast and scratches his face in grief, for if his son becomes blind and can no longer be an honored servant of the Hukuma or government, who will give his poor father the luxuries he has learned to require, the cigarette and the frequent cup of coffee.

A good looking girl of fifteen with one of her corneæ almost entirely destroyed is swabbing away for dear life. Poor thing, she hopes that her beauty may be preserved, for if not she will no longer be talked of as a prize in the marriage market; so, careless of exposing her features, she carries out her treatment.

The large group of black-robed figures sitting together are women with trichiasis (ingrowing eyelashes), there are twenty or thirty of them; there are twenty or thirty such cases every day;

they are easily cured by operation, but the operation for each one takes about half an hour. So that if all the operations were done for this condition alone, without touching all the other cases, the surgeons would operate for twelve hours a day; most of them must therefore be inevitably postponed.

Clinical Work Done in 1909.

The two travelling hospitals carried on work at Mansourah, Beni Suef, Gizeh, and Luxor. The only permanent hospital at present opened is that of Tanta, which was at work during the whole year.

The traveling hospitals naturally were closed for purposes of transfer from one locality to the other, and one of the hospitals



Traveling Tent Hospital—Luxor.

was closed during the summer in order that leaves might be given to the overworked surgeons and employés.

The average number of patients seen per day was 221. The number of new patients treated was 12,092, each of whom attended the hospital about 14 times; 4,071 of the total number were under the age of fifteen years.

The number of operations performed was 9,930, of which 2,783 were done under the influence of chloroform.

The number of patients seen with ingrowing eyelashes, trichiasis or entropion, was 10,060, but the time at our disposal

only enabled us to do 3,128 operations for the relief of this condition, which is not merely painful, but frequently leads to blindness.

The disability caused is such that the fellahin, unable to obtain advice or operation from a skilled surgeon, for there are none available for the prices they can afford to pay, frequently resort to charlatans to cure them. The operation performed is this: a fold of skin of the upper lid is included between two pieces of reed, the ends of which are tied tightly together to such a degree as to cause eversion of the ingrowing eyelashes. The included skin naturally necroses and falls away, the raw area granulates up, and in a certain number of cases in which the operation was done for the relief



Luxor—Children being treated.

of entropion the condition is cured. But trichiasis is much more common than entropion in Egypt; and the majority of people who resort to these quacks, not only are not cured, but with a large piece of the skin of their upper lid removed, they are unable ever to close their eyelids again (lagophthalmos), causing great disability in all cases and frequently resulting in complete opacity of the cornea with dire results to vision. One thousand four hundred eighty-one such cases were seen last year.

Ophthalmic Staff.

The regular staff at one of the permanent or complete camp hospitals consists of two Egyptian surgeons, one of whom has

spent at least two years learning ophthalmic surgery on the Ophthalmic Hospital Staff after taking his medical diploma at the Government Medical School in Cairo. Two senior ophthalmic surgeons or inspectors, of whom one is English and the other Egyptian, are always in residence at the various hospitals in turn. Frequent visits are also made by the chief inspector to the hospitals for the general management of which he is responsible.

One of the most important functions of the Ophthalmic Hospitals is to provide clinical teaching for Egyptian surgeons, and this function is, I think, fulfilled with success.

The clerical staff consists of a clerk, a headman of the camp, two trained male hospital attendants and seven servants, including



Luxor—Operation tent. In the distance hills, on the other side of the river near the Tomb of the Kings.

a woman who looks after the comfort of the women in-patients, and a cook to prepare food for all the patients in the hospital, which is provided for them gratis.

The regulation period for each travelling hospital to stay in one place is six months, after which it is moved to another place. This is not because the need for the hospital's services is apparently less after six months, but because it is only just to give different places the advantage of the hospital's presence.

It is impossible in most places in Upper Egypt to carry on travelling hospitals in the summer. The heat, the dust and the flies

make surgical work unsatisfactory. Therein lies the advantage of permanent hospitals, in which surgical work can be carried on all the year round.

Origin of Ophthalmic Hospitals

In 1903, Sir Ernest Cassel placed a sum of £40,000 at the disposal of Lord Cromer for ophthalmic relief in Egypt. The form that the relief took, by the advice of a committee presided over by Sir Horace Pinching, K. C. M. G., the director general of the Department of Public Health, was the establishment of a Travelling Ophthalmic Hospital, and I was brought out to organize and administer it. This hospital was subsequently increased by the



Luxor—Eleven cataract patients. The operation for removal of cataract (extraction with iridectomy), performed on all these patients on March 20, 1910; at date of writing, March 30, 1910, all are progressing satisfactorily.

addition of a similar hospital, both under my general superintendence.

These hospitals became a definite branch of the Egyptian Government service in 1906, in which year the first permanent hospital was built at Tanta. In the next year a hospital was built at Assiout to which the inhabitants of the province contributed a sum of £5,000 and last year a similar sum was given by an Egyptian gentleman for the erection of a permanent hospital at Mansura.

The Ministry of Finance has undertaken to maintain ophthalmic hospitals, built by private effort, on approved plans in the cap-



Eleven cataract patients for whom operations were performed March 20, 1910.

atal provincial towns, if they are handed over to the control of the ophthalmic section of the Public Health Department.

This very valuable undertaking was obtained by Mr. Graham, the present Director General of the Department of Public Health.

It is too much to expect that an immediate provision could be made for the maintenance of a complete system, but we have the active sympathy of Sir Eldon Gorst, K. C. B., the British agent, and of Mr. Paul Harvey, C. B., the financial adviser to the Khedive, and we hope in the course of time to give effect to a complete scheme.

The *laissez-aller* attitude of the majority of the Egyptians as regards the suffering from eye diseases, which they are so accustomed to, makes it improbable that any comprehensive effort will be made by the Egyptians themselves.

Some financial assistance has been received from some American and English visitors to Egypt, though not in sufficient amounts to produce any great result.

Project for a Complete Ophthalmic Organization

A complete scheme of ophthalmic relief in Egypt means the provision of a permanent hospital in the capital town of each of the fourteen provinces. There should be in addition in each province five or six small travelling hospitals working in the districts (merkazes) which are remote from the permanent hospital of the capital town.

The cost of building and equipping a permanent hospital is L.E. 5,000 & the cost of maintenance is L.E. 1,600 a year.

The cost of equipping a small travelling hospital is L.E. 400 and the cost of its maintenance is L.E. 700 a year.

Postscript June 1911

Considerable progress has been made in the present year 1911. Assiout Hospital has been completed and is in working order. Money for new hospitals has been provided locally in Beni Suef, Sharkia and Menufia. A small travelling hospital will also be organized for the province of Gharbia which will be equipped and maintained at the expense of the provincial council.

from the permanent hospital of the same province, staying in each place at least six months.

All kinds of ophthalmic surgical work would be carried on, except the more serious cataract and orbital tumor operations, which would be sent to the permanent hospital.

The permanent hospital would act as a base for the traveling hospital and for the flying columns. It would receive all the more important operative cases and any cases of exceptional clinical interest met with in the province; these would form clinical material for teaching purposes, and one of the most important functions of the permanent hospital should be that of a center of ophthalmic instruction for post-graduate students.

The cost of building each permanent hospital would be, at the lowest possible estimate, £5,000, and the cost of equipment £1,500. Three permanent hospitals having been already provided, the cost of these items for the remaining eleven provinces only remains.

The cost of equipment and first installation of each complete camp hospital is £1,000. Two being already in existence, the cost of the remaining twelve hospitals would be £12,000. Twenty-eight flying columns at £500 each, would cost £14,000. Giving a grand total of about £100,000 or half a million dollars.

The upkeep of this organization at the rate of £2,000 a year for each permanent or complete camp hospital and £1,000 a year for each flying column would be about £75,000, or less than four hundred thousand dollars. This, of course, is in addition to the present yearly expenditure which is about fifty thousand dollars.

Postscript on the Stages of Trachoma

A division of Trachoma, at any rate as the disease exhibits itself in Egypt, into four stages greatly facilitates our conception of its clinical course and of the treatment which is indicated.

The classification depends upon the comparative prominence of the three features, granulations, papillary hypertrophy and connective tissue formation.

Trachoma is a condition of the mucous membrane of the eyelids, in which gross changes occur, resulting in the formation of so-called granulations (with or without a papillary hypertrophy), which in favorable cases disappear and are replaced by connective tissue.

Trachoma I is the beginning of the disease, and Trachoma IV

is its end, when a cure has resulted (either naturally or by treatment).

Trachoma I is well described by Hourmouziades: "One finds on the conjunctiva of the tarsus and of the superior eul-de-sae, especially at the two extremities of the tarsus, slight roughness, forming grayish or grayish-yellow islands which are semi-transparent and almost avascular, with small blood vessels converging towards them. These roughnesses generally resemble grains of sago. There may or may not be a mucous discharge."

The simple form lasts a variable time, sometimes as long as a year, but after the development to a certain degree of the granulations, the conjunctiva becomes more vulnerable and complications with species of conjunctivitis other than *Trachoma* usually occur.

This form may pass into *Trachoma II*, or in favorable cases or cases which have been treated, into *Trachoma III* or *IV*.

Trachoma II. In *Trachoma II*, there is usually a discharge and it is in this stage that the disease is especially infective. It is the stage in which granulations are numerous and large, or in which a papillary hypertrophy is present. It may be divided in the above sense into *Trachoma IIa*, and *Trachoma IIb*.

Trachoma IIa, Gelatinous granules are present all over the tarsi and in the upper fornix. In some cases the individual granulations can no longer be distinguished, they fuse into tumor-like masses or merge into a general infiltration, the tissue assuming a peculiar glassy gelatinous appearance.

Trachoma IIb. There is formation and hypertrophy of pseudo-papillæ, consisting of red raspberry-like elevations, which mask more or less the typical gelatinous granules. This papillary form, as it is called, is specially marked on the upper tarsus. This form may easily be mistaken for spring catarrh, and for a condition occurring as the result of any long-continued irritation or of a protracted attack of purulent ophthalmia in non-trachomatous eyes.

Trachoma III. In this stage cicatrization has definitely begun, and is more or less advanced. Islands of inflamed conjunctiva or of trachomatous granules are seen to be surrounded by a network of fine lines of connective tissue. It is in this stage that necrosis often results from the pressure of the shrinking connective tissue (post-trachomatous degeneration). The necrotic tissue may become calcareous. The cicatrization, which is typical of this stage, is gener-

ally supposed to be pathognomonic of Trachoma, this statement, however, is not strictly true.

Trachoma IV is a condition in which there is a smooth conjunctiva seamed by white lines of connective tissue. This is the stage of practically complete cicatrization of the conjunctiva or of cured Trachoma.

I am aware that there are many cases which cannot be definitely stated to belong to one or other category, for instance a case may be between Trachoma II and Trachoma III or between Trachoma III and Trachoma IV. But it is my experience that for teaching purposes this division of Trachoma is a valuable means of differentiating between its various phases.

By means of this classification of four stages, it is possible to differentiate between the severity of cases of Trachoma, and to gauge the progress during treatment of an individual or group of individuals. Without any classification, it is impossible to obtain more than a general idea of such progress, an idea which is frequently erroneous.⁵

Amongst well-known surgeons to whom I have exhibited patients in the various stages, I may mention Dr. Casey Wood of Chicago, Dr. Landolt of Paris and Professor Greef of Berlin.

The lines of treatment adopted in Egypt are as follows:

Trachoma I. Application of silver nitrate solution, 2 per cent, or of perchloride of mercury solution, 1 or 2 per cent, with or without previous scarification.

Trachoma IIa. Scraping the granular conjunctiva, with or without expression of the granulations with forceps; subsequent application of perchloride of mercury solution, 1 or 2 per cent. Kuhnt's combined excision operation is done in a certain number of cases where cicatrization of the fornix has already occurred.

Trachoma IIb is best treated by means of Kuhnt's combined excision operation, provided the fornix is cicatrized.

Otherwise the treatment is the same as for Trachoma IIa.

Trachoma III. The application of copper sulphate stick or of perchloride of mercury solution, 2 per cent, with or without previous scraping of the remaining granules of the cicatrizing conjunctiva.